CLAIMS

1. (Currently Amended) A method for gradually deforming an initial realization formed from measurements or observations and defining a distribution of a set of objects in a zone of a heterogeneous medium, generated by simulation of an object type stochastic model, the objects being distributed in the zone according to a Poisson point process in a form of figurative points with a point density $\lambda(x)$ varying according to their position (x) in the zone, comprising :

generating a realization of a uniform random vector according to which a position of each object is defined while respecting density $\lambda(x)$; and

gradually modifying the uniform random vector according to a gradual deformation procedure, so as to obtain gradual migration of each object and consequently gradual change in the distribution of the objects in the zone, until a final realization best adjusted to parameters relative to the structure of the medium, is obtained, which gives a realistic representation of the configuration of the objects in the modelled heterogeneous medium.

2. (Currently Amended) A method as claimed in claim 1, wherein migration of the figurative points representing objects in a subdomain of the zone is limited by imposing a zero point density in the complementary part of the subdomain.

3. (Currently Amended) A method as claimed in claim 1, wherein a realization containing a first set of N1 points is gradually changed to a realization containing a second set of N2 points by constructing a chain N(t) of Poisson

numbers between the two numbers N1 and N2 using the gradual deformation procedure.

4. (Currently Amended) A method as claimed in claim 1, wherein size, shape and orientation of an object are gradually modified during it's the migration of the object using the gradual deformation procedure.

5. (Currently Amended) A method as claimed in claim 1, wherein point density ((x) is gradually adjusted using the gradual deformation procedure.

6. (Currently Amended) A method as claimed in claim 2, wherein a realization containing a first set of N1 points is gradually changed to a realization containing a second set of N2 points by constructing a chain N(t) of Poisson numbers between the two numbers N1 and N2 using the gradual deformation procedure.

7. (Currently Amended) A method as claimed in claim 2, where size, shape and orientation of an object are gradually modified during it's the migration of the object using the gradual deformation procedure.

8. (Currently Amended) A method as claimed in claim 3,
wherein size, shape and orientation of an object are gradually modified during it's the migration of the object using the gradual deformation procedure.

9. (Currently Amended) A method as claimed in claim 2, wherein point density ((x) is gradually adjusted using the gradual deformation procedure.

10. (Currently Amended) A method as claimed in claim 3, wherein point density ((x) is gradually adjusted using the gradual deformation procedure.

11. (Currently Amended) A method as claimed in claim 4, wherein point density ((x) is gradually adjusted using the gradual deformation procedure.

12. (Currently Amended) A method as claimed in claim 6, wherein point density ((x) is gradually adjusted using the gradual deformation procedure.

13. (Currently Amended) A method as claimed in claim 7, wherein point density ((x) is gradually adjusted using the gradual deformation procedure.

14. (Currently Amended) A method as claimed in claim 8, wherein point density ((x) is gradually adjusted using the gradual deformation procedure

15. (New) A method as claimed in claim 1 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

16. (New) A method as claimed in claim 2 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

17. (New) A method as claimed in claim 3 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

18. (New) A method as claimed in claim 4 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

19. (New) A method as claimed in claim 5 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

20. (New) A method as claimed in claim 6 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

21. (New) A method as claimed in claim 7 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

22. (New) A method as claimed in claim 8 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

23. (New) A method as claimed in claim 9 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

24. (New) A method as claimed in claim 10 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

25. (New) A method as claimed in claim 11 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

26. (New) A method as claimed in claim 12 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

27. (New) A method as claimed in claim 13 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

28. (New) A method as claimed in claim 14 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.